

U.S. DEPARTMENT OF ENERGY
DEPARTMENT-WIDE
FUNCTIONAL AREA QUALIFICATION STANDARD

SENIOR TECHNICAL SAFETY MANAGER QUALIFICATION STANDARD

Defense Nuclear Facilities Technical Personnel



**U.S. Department of Energy
Washington, D.C. 20585**

November 1996

CONCURRENCE AND APPROVAL

The Associate Deputy Secretary for Field Management is the Management Sponsor for the Department-wide Senior Technical Safety Manager Functional Area Qualification Standard. The Management Sponsor is responsible for reviewing the Qualification Standard to ensure that the technical content is accurate and adequate for Department-wide application. The Management Sponsor, in coordination with the Human Resources organization, is also responsible for ensuring that the Qualification Standard is maintained current. Concurrence with this Qualification Standard by the Associate Deputy Secretary for Field Management is indicated by signature below.

The Technical Personnel Program Coordinator (TPPC) is responsible for coordinating the consistent development and implementation of the Technical Qualification Program throughout the Department of Energy. Concurrence with this Qualification Standard by the Technical Personnel Program Coordinator is indicated by signature below.

The Technical Excellence Executive Committee (TEEC) consists of senior Department of Energy managers. This Committee is responsible for reviewing and approving the Qualification Standard for Department-wide application. Approval of this Qualification Standard by the Technical Excellence Executive Committee is indicated by signature below.

NOTE: **The signatures below reflect concurrence and approval of this Qualification Standard for interim implementation. Final concurrence and approval will occur in October 1997, pending comments received based upon implementation.**

CONCURRENCE:

Director, Office of Project and
Fixed Asset Management

Technical Personnel Program
Coordinator

APPROVAL:

Chairman
Technical Excellence Executive Committee

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U.S. DEPARTMENT OF ENERGY FUNCTIONAL AREA QUALIFICATION STANDARD

FUNCTIONAL AREA

Senior Technical Safety Manager

A senior technical safety manager is that person who is usually at the GS/GM-15 or Senior Executive Service (SES) level and assigned the direct responsibility to manage technical programs, resources, and/or Department personnel who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities impacting the safe operation of defense nuclear facilities.

PURPOSE

The Department's Technical Excellence Policy, issued by the Secretary on October 29, 1993, commits the Department to continuously strive for technical excellence, including recruiting capable individuals who share the Department of Energy (DOE) core values. The Technical Qualification Program and its component parts; the General Technical Base Qualification Standard, the Functional Area Qualification Standards, and the Office/Facility-Specific Qualification Standards, are used to complement the personnel processes that support the Department's drive for technical excellence. They are not intended to replace the U.S. Office of Personnel Management's Qualifications Standards nor other Departmental personnel standards, rules, plans, or processes.

The primary purpose of the Technical Qualification Program is the qualification of incumbent employees however, integration of the Technical Qualification Program with the Department's personnel processes should be used to support the Department's drive for technical excellence. In support of this goal, the competency requirements defined in the Technical Qualification Standards should be aligned with and integrated into the recruitment and staffing processes for technical positions. The Technical Qualification Standards should form the primary basis for developing vacancy announcements, qualification requirements, crediting plans, interviewing questions, and other criteria associated with the recruitment, selection, and internal placement of technical personnel. Care should be exercised that DOE specific competencies are not unnecessarily included in this process thereby excluding well-qualified individuals due to their lack of Department-specific knowledge which can be attained once hired. Office of Personnel Management minimum qualifications standards must still be used, but will be greatly enhanced by application of appropriate materials from the Technical Qualification Standards. By aligning and integrating the personnel and training processes, particularly at the front end of a staffing action, we can ensure that these processes reinforce each other, and allow the Human Resources and Training communities to work more effectively with management in pursuit of the common goal of an improved technical workforce.

The Technical Qualification Program, as mentioned above, is divided into three levels of technical competence and qualification. The General Technical Base Qualification Standard establishes the base technical competence required of all Department of Energy defense nuclear facility technical personnel. Functional Area Qualification Standards such as this one,

build on the requirements of the General Technical Base Qualification Standard and establish Department-wide functional competency requirements in each of the identified functional areas. Office/Facility-Specific Qualification Standards supplement the Functional Area Qualification Standards and establish unique operational competency requirements at the Headquarters or Field element, site, or facility level.

The Senior Technical Safety Manager Functional Area Qualification Standard replaces the Technical Manager Functional Area Qualification Standard which was issued in May 1995. It establishes common functional area competency requirements for all Department of Energy senior technical safety managers who provide assistance, direction, guidance, oversight, or evaluation of contractor technical activities impacting the safe operation of defense nuclear facilities. Satisfactory and documented attainment of the competency requirements contained in this Standard ensures that senior technical safety managers possess the minimum requisite competence to fulfill their functional area duties and responsibilities. Additionally, these competency requirements provide the functional foundation to assure successful completion of the appropriate Office/Facility-Specific Qualification Standard.

APPLICABILITY

This Standard applies to all Department of Energy senior technical safety managers as identified by their respective Operations/Field Office Manager or Principal Secretarial Officer (PSO). Personnel designated as senior technical safety managers (STSM) are participants in the Technical Qualification Program and are required to attain the competency requirements of the General Technical Base Qualification Standard, the Senior Technical Safety Manager Functional Area Qualification Standard, and the appropriate Office/Facility-Specific Qualification Standard, as defined by DOE Order 360.1, Training.

IMPLEMENTATION REQUIREMENTS

The competencies contained in the Standard are divided into the following five categories:

1. Management and Leadership
2. General Technical
3. Regulations
4. Administrative
5. Assessment and Oversight

Each of the categories is defined by one or more competency statements indicated by bold print. The competency statements define the expected knowledge and/or skill that an individual must meet and are requirements. Each of the competency statements is further explained by a listing of supporting knowledge and/or skill statements. **The supporting knowledge and/or skill statements are not requirements and do not necessarily have to be fulfilled to meet the intent of the competency.**

The competencies identify a familiarity level, a working level, or an expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. These levels are defined as follows:

Familiarity level is defined as basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge.

Working level is defined as the knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate materials and/or expert advice as required to ensure the safety of Departmental activities.

Expert level is defined as a comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance.

Demonstrate the ability is defined as the actual performance of a task or activity in accordance with policy, procedures, guidelines, and/or accepted industry or Department practices.

Headquarters and Field elements shall establish a program and process to ensure that senior technical safety managers possess the competency requirements contained in this Standard. Documentation of the completion of the requirements of this Standard shall be included in the employee's training and qualification record.

In selected cases, it may be necessary to exempt an individual from completing one or more competencies in this Functional Area Qualification Standard and/or the General Technical Base Qualification Standard. Exemptions from individual competencies shall be justified and documented in accordance with DOE Order 360.1, Training. Exemptions shall be requested by the individual's immediate supervisor, and approved one level above the individual's immediate supervisor. If the immediate supervisor is at the Operations Manager or Deputy Assistant Secretary level or above, then he or she shall be the final approval authority.

Equivalencies may be granted for individual competencies based upon an objective evaluation of the employee's prior education, experience, and/or training. Documentation of equivalencies shall be in accordance with DOE Order 360.1, Training. Equivalencies shall be requested by the individual's immediate supervisor, and approved one level above the individual's immediate supervisor. If the immediate supervisor is at the Operations Manager or Deputy Assistant Secretary level or above, then he or she shall be the final approval authority. The supporting knowledge and/or skill statements, while not requirements, should be considered before granting an equivalency.

Training shall be provided to employees in the Technical Qualification Program that do not meet the competencies contained in the qualification standard. Departmental training will be based upon appropriate supporting knowledge and/or skill statements similar to the ones listed for each of the competency statements. Headquarters and Field elements should use the supporting knowledge and/or skill statements as a basis for evaluating the content of any training courses used to provide individuals with the requisite knowledge and/or skill required to meet the qualification standard competency statements.

DUTIES AND RESPONSIBILITIES

The following are the typical duties and responsibilities expected of defense nuclear facility technical personnel assigned to the Senior Technical Safety Manager Functional Area:

- A. Integrate safety into management and work practices to accomplish mission objectives, while ensuring worker and public health and safety, and the protection of the environment.
- B. Comply with Departmental Directives , Federal and State Regulations and other binding agreements.
- C. Direct and provide support, and allocate resources to meet the Department's mission safely.
- D. Manage people, implement policies and procedures, perform technical reviews, and provide technical direction and feedback to contractor and federal employees.
- E. Integrate monitoring and assessment activities and provide feedback to the contractors.
- F. Recruit, select, train and qualify employees to establish and maintain technical competence.
- G. Effectively communicate technical safety expectations and issues.

Position-specific duties and responsibilities for a senior technical safety manager are contained in their Office/Facility-Specific Qualification Standard or Position Description.

BACKGROUND AND EXPERIENCE

The U. S. Office of Personnel Management's Qualification Standards Handbook establishes minimum education, training, experience, or other relevant requirements applicable to a particular occupational series/grade level, as well as alternatives to meeting specified requirements.

1. Education:

A senior technical safety manager shall possess a scientific or engineering degree with a major in an academic area that supports the functional responsibilities of the position. (Exceptions to this requirement should be considered only in rare circumstances, and then in accordance with Office of Personnel Management qualification standards). An advanced technical degree is considered to be an advantage. Additionally, professional credentials (such as Professional Engineer) and industry certifications are desirable.

2. Experience:

Senior technical safety managers should show a demonstrated capability to manage technical issues at the level the position requires. For example, for a management position that is narrow in scope with significant detail work, the senior technical safety manager shall have a level of expertise close to that of a subject matter expert. For a management position that is very broad in scope, senior technical safety managers shall possess an interdisciplinary background, and have a demonstrated technical competence in a specific area at a previous point in their careers. For supervisory or managerial positions, senior technical safety managers should also have demonstrated leadership skills.

There may be situations where the incumbent in an identified senior technical safety management position does not meet the education and experience requirements as discussed above. In these cases, Management has various options to address or compensate for this situation. In developing and implementing compensatory measures, it should be recognized that Management has the responsibility to create a situation where there is an unbroken chain of fully qualified senior technical safety managers in positions of authority. Examples of various options for compensatory measures can be found in the Handbook for Senior Technical Safety Manager Positions.

REQUIRED COMPETENCIES

The competencies contained in this Standard are distinct from those competencies contained in the General Technical Base Qualification Standard. All senior technical safety manager personnel must possess the competency requirements of the General Technical Base Qualification Standard in addition to completing the competency requirements contained in this Standard. Each of the competency statements defines the level of expected knowledge and/or skill that an individual must possess to meet the intent of this Standard. **The supporting knowledge and/or skill statements further describe the intent of the competency statements but are not requirements.**

1. MANAGEMENT AND LEADERSHIP

1.1 A senior technical safety manager shall demonstrate the ability to exercise leadership to ensure that:

- **Key national, Departmental and organizational goals, priorities, values and other issues are satisfied in making program decisions**
- **Organization's mission and strategic vision are reflected and supported in the management of its people**

Supporting Knowledge and/or Skills

- a. Identify and discuss the key issues affecting the organization and discuss how these issues affect the organization including:
 - Political
 - Economic
 - Social
 - Technological
 - Administrative
 - Resources
- b. Describe the roles and relationships of the components of the national and Departmental policy making and implementation process, including:
 - The President
 - Political appointees
 - Congress
 - The Judiciary
 - State and local governments
 - Interest groups
- c. Discuss ways to promote quality through the effective use of quality management principles, including:
 - Continuously examining and improving programs and processes
 - Timely implementation of improvements
 - Worker involvement
 - Quality principles and techniques training
 - Incentives
 - Open and honest communication

1.2 A senior technical safety manager shall demonstrate the ability to acquire and administer financial, material, and information resources.

Supporting Knowledge and/or Skills

- a. Demonstrate the ability to manage the budgetary process, including preparing and justifying a budget, and operating the budget under organizational and Congressional procedures.
- b. Discuss the elements involved in overseeing procurement and contracting procedures and processes.
- c. Describe the process to be followed in the allocation of financial resources.
- d. Discuss the process for establishing and assuring the use of internal controls for financial systems and the necessity for these controls.
- e. Discuss the potential benefits to the organization in utilizing management information systems and other technological resources that meet the organization's needs.

1.3 A senior technical safety manager shall demonstrate the ability to effectively communicate technical safety expectations and issues.

Supporting Knowledge and/or Skills

- a. Demonstrate the ability to represent and speak for the organizational unit on safety management issues (e.g., presenting, explaining, selling, defending, and negotiating) to those within and outside the Department.
- b. Discuss the means of developing and/or enhancing alliances with external groups (e.g., other agencies and governments, Congress, and clientele groups).
- c. Discuss the benefits to safety management of promoting effective communication and exchange across the Department including:
 - Focused sharing of information
 - Interaction and resolution of issues
 - Use of lesson learned
- d. Describe how the following expectations are effectively communicated within an organization to build a continuous improvement culture:
 - Development and exploration of new ideas are encouraged
 - Process quality and safety responsibilities within the organization are understood
 - Individuals know how their work contributes to safety objectives and strategic goals
 - Unsafe practices, nonconforming items and potential areas for improvement are readily identified
 - Enhanced product and process safety and reliability are emphasized

1.4 A senior technical safety manager shall have a working level knowledge of the policies and procedures used to recruit, select, train, and qualify employees to establish and maintain technical competency.

Supporting Knowledge and/or Skills

- a. Discuss planning, recruitment, and selection processes that can be used to acquire a technically competent workforce with the necessary knowledge, skills, abilities, and/or potential to accomplish the goals of the organization.
- b. Discuss the parameters of the Excepted Service Authority(ies), the circumstances which would dictate use of an Excepted Service Authority, and the process and procedures for using an Excepted Service Authority to recruit and hire.
- c. Discuss ways to motivate, reward, recognize, and retain excellent employees or recognize a major contribution to the organization as described in the Administrative Flexibilities Handbook.
- d. Discuss the roles and responsibilities of "Alter Egos" in the recruitment, selection, training, and retention of technical personnel.
- e. Describe methods used to assess an employee's unique developmental needs and why providing developmental opportunities to employees could contribute to the achievement of organizational goals.
- f. Describe in general the training and qualification requirements for contractors specified in DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities.
- g. Describe the Technical Qualification Program (TQP) for Federal employees specified in DOE Order 360.1, Training.
- h. Describe the following three types of mentoring relationships and discuss the types of goals that an organizationally sponsored mentoring program is intended to meet:
 - Supervisor
 - Informal
 - Structured-Facilitated
- i. State and discuss the Department's policy on sexual harassment in the work place.
- j. Discuss the benefits, both to the organization and the intern program participants, which are typically expected to result from an intern program.

1.5 A senior technical safety manager shall have a working level knowledge of the roles and responsibilities for the integrated safety management system.

Supporting Knowledge and/or Skills

- a. Describe the overall objective of the Department-wide Functions and Responsibilities Manual and the similar lower-tier organization-level manuals developed by Headquarters Offices and Field Elements.
- b. Give an example of a circumstance that might make it necessary or reasonable to deviate from the responsibilities and authorities identified in the Functions and Responsibilities Manual and describe the exemption process in DOE Manual 251.1, "Directives System Manual."

1.6 A senior technical safety manager shall have a familiarity level knowledge of the Department's various mechanisms for addressing staffing gaps and peak workload.

Supporting Knowledge and/or Skills

- a. Discuss the benefits to the Department and individual organizational units which could be realized through use of the following:
 - Core Technical Group
 - EH Technical Assistance through the Office of Field Support
 - Mentoring Program
 - Special assignment/detail
- b. Describe the process to obtain technical assistance from the above Groups/Programs and the types of assets available.
- c. Describe the process for enrolling or participating in the above Groups/Programs.

1.7 A senior technical safety manager shall have a familiarity level knowledge of the system used to report employee concerns to management.

Supporting Knowledge and/or Skills

- a. Describe the purpose, scope, and importance of the Department's Employee Concerns Management System.
- b. Describe the responsibilities of the following in implementing DOE Order 5480.29, Employee Concerns Management System:
 - Headquarters and Field Office Managers
 - Employee Concerns Manager
 - Employee Concerns Review Panel

- c. Discuss the criteria for determining the significance of an employee concern.
- d. Describe how employee concerns are filed using the "Hotline" and the Employee Concerns Management System Reporting Form.
- e. Discuss methods of dealing with employee/labor management relations matters, including resolution of conflicts; attending to morale and organizational climate issues; handling administrative, labor management, and EEO issues; and, how to begin disciplinary actions when other means have not been successful.

2. GENERAL TECHNICAL

Note: When Department of Energy directives are referenced in the Qualification Standard, the most recent revision should be used.

2.1 A senior technical safety manager shall have working level knowledge of the Department's philosophy and approach to implementing Integrated Safety Management.

Supporting Knowledge and/or Skills

- a. Explain the objective of Integrated Safety Management.
- b. Describe how the seven Guiding Principles in the Integrated Safety Management Plan are used to implement an integrated safety management philosophy.
- c. Describe the five core safety management functions in the Integrated Safety Management Plan and discuss how they provide the necessary structure for work activities.
- d. Identify and discuss existing Department programs and initiatives that lead to successful implementation of Integrated Safety Management including:
 - Standards/Requirements Identification Documents (S/RIDs) and Work Smart Standards
 - Contract reform and performance-based contracting
 - Research and Development Laboratory activities related to safety management
 - Operational Readiness Reviews (ORR)
 - Nuclear Explosive Safety and Surety Program
- e. Discuss the purpose, content, and application of DOE Policy 450.4, Safety Management System Policy.
- f. Explain the basis upon which the safety management functions could differ from facility to facility.
- g. Discuss the underlying safety management issues affecting the design, construction, operation, and maintenance of the Department's facilities, activities, and assets.
- h. Describe the Departmental capabilities/resources that could be utilized to solve short term technical safety issues.

2.2 A senior technical safety manager shall have a working level knowledge of nuclear safety management standards and documentation including their application.

Supporting Knowledge and/or skills

- a. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear facility safety authorization basis:
 - DOE Order 5480.21, Unreviewed Safety Questions
 - DOE Order 5480.22, Technical Safety Requirements
 - DOE Order 5480.23, Nuclear Safety Analysis Reports
 - DOE Order 5480.24, Nuclear Criticality Safety
 - DOE Order 425.1, Startup and Restart of Nuclear Facilities
 - DOE-STD-1027-92, Guidance on Preliminary Hazard Classification and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports
 - DOE-STD-3006-93, Planning and Conduct of Operational Readiness Reviews (ORR)
 - DOE-STD-3009-94, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports
 - DOE-STD-3011-94, Guidance for Preparation of DOE Order 5480.22 (TSR) and DOE Order 5480.23 (SAR) Implementation Plans
 - DOE P 410.1A, Developing Nuclear Safety Requirements
- b. Discuss the purpose, content, and philosophy, as appropriate to the position, of the following safety management standards for nuclear explosive safety:
 - DOE Order 452.1, Nuclear Explosive and Weapon Surety
 - DOE Order 452.2, Safety of Nuclear Explosive Operations
 - DOE Order 5610.12, Packaging and Offsite Transportation of Nuclear Components, and Special Assemblies Associated with the Nuclear Explosives
 - DOE Order 5610.13, Joint Department of Energy/Department of Defense Nuclear Weapon System Safety, Security, and Control Activities
 - DOE Order 5610.14, Transportation Safeguards System Program Operations
 - DOE Order 5660.1B, Management of Nuclear Materials
- c. Describe the process for determining the applicable set of standards for operation such as:
 - Standards/Requirements Identification Documents (S/RIDs)
 - Work Smart Standards
- d. Discuss the application and implementation of the standards listed at Supporting Knowledge and Skill 2.2.c. in the development of site and facility safety management documents.
- e. Discuss the maintenance of safety management documents to identify conditions and procedures for modifications of safety management documents.

- f. Discuss the general types of standards established by industry standards organizations such as the following:
 - American Nuclear Society (ANS)
 - American National Standards Institute (ANSI)
 - American Society of Mechanical Engineers (ASME)
 - American Society for Testing and Materials (ASTM)
 - International Organization for Standardization (ISO)
 - National Fire Protection Association (NFPA)
- g. Describe the relationship between Department of Energy Directives and industry and military standards.

2.3 A senior technical safety manager shall have a working level knowledge of environmental standards, laws, and regulations and their application.

Supporting Knowledge and/or Skills

- a. Discuss the interrelationship between the following:
 - Environmental law
 - Statutory construction
 - The United States Code
 - The Code of Federal Regulations
 - State Laws and Regulations
- b. Describe the organization, mission, and enforcement authorities of the Environmental Protection Agency (EPA).
- c. Discuss the applicability and timing for National Environmental Policy Act (NEPA) documentation and the role of the Department and contractor in implementation.
- d. Discuss the responsibilities of the federal staff for oversight of the contractor organization for environmental compliance.
- e. Discuss the enforcement of environmental statutes under civil and criminal authorities.
- f. Discuss ISO 14000, Environmental Management Systems Standards, and their relevance to Department of Energy and contractor performance.
- g. Discuss the purpose and scope of Standards/Requirements Identification Documents (S/RIDs) and Work Smart Standards and, their relationship to environmental standards, laws, and regulations.

2.4 A senior technical safety manager shall have a working level knowledge of worker protection standards and their application.

Supporting Knowledge and/or Skills

- a. Discuss the interrelationship between the following:
 - Occupational safety and health laws
 - Statutory construction
 - The United States Code
 - The Code of Federal Regulations
 - State Laws and Regulations
- b. Describe the organization, mission and enforcement authorities of the Occupational Safety and Health Administration (OSHA).
- c. Describe the following programs and their relevance to the Department:
 - Voluntary Protection Program (VPP)
 - Responsible Care Program
- d. Discuss the enforcement of occupational safety and health statutes under civil and criminal statutes.
- e. Describe the role(s) the contractor plays in implementing occupational safety and health regulations.
- f. Discuss the purpose and scope of Standards/Requirements Identification Documents (S/RIDs) and Work Smart Standards and their relationship to worker protection standards.

2.5 A senior technical safety manager shall have a working level knowledge of the Department's Emergency Management resources including emergency plans, external agency involvements, interagency relationships, and the command and control function during an emergency.

Supporting Knowledge and/or Skills

- a. Discuss the Department's three-tiered organizational approach to managing Operational Emergencies.
- b. Discuss the general roles and responsibilities of the Departmental elements for management of the Department's Emergency Management System as defined in DOE Order 151.1, Comprehensive Emergency Management System.
- c. Define "Operational Emergencies" and the circumstances to which they apply as defined in DOE Order 151.1, Comprehensive Emergency Management System.

- d. Discuss the concept of Emergency Public Information and the different roles of the Department's Public Relations Office and the Joint Information Center in disseminating information in an emergency.
- e. Discuss the concept and define the components of the Incident Command System in the context of on-site and off-site emergency response.
- f. Describe the contents, the requirements for, and where each of the following types of emergency plans can be located on-site:
 - Site Emergency Plan
 - Facility Emergency Plan
 - Building Emergency Plan
 - Security Emergency Plan
 - Fire Prevention/ Suppression Plan
 - Worker Safety Plan(s)

2.6 A senior technical safety manager shall have working level knowledge of conduct of operations.

Supporting Knowledge and/or Skills

- a. Describe the reason for implementing conduct of operations at Department of Energy facilities.
- b. Discuss the requirements for implementing conduct of operations at DOE facilities and the associated impact on safety and efficiency of operations.
- c. Discuss the purpose and describe the roles and responsibilities of the senior technical safety manager in implementing DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities.
- d. Discuss the concept of "graded approach" and how it applies to the implementation of conduct of operations.
- e. For each of the eighteen chapters in Attachment I to DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, describe in detail how each activity contributes to an effective and safe operational environment.
- f. Describe the types of operations where formal conduct of operations apply.
- g. Discuss how the self-assessment process is applied to ensure safe operations.
- h. Discuss the responsibilities, authorities, and implementation requirements for DOE Order 430.1, Life-Cycle Asset Management, at defense nuclear facilities.

2.7 A senior technical safety manager shall have a working level knowledge of waste management principles and practices.

Supporting Knowledge and/or Skills

- a. Define the following terms:
 - Low level waste
 - High level waste
 - Transuranic waste
 - Mixed waste
- b. Discuss the Department's policy regarding the handling and management of waste as described in DOE Order 5820.2A, Radioactive Waste Management.
- c. Discuss the Department's performance objectives and performance assessment requirements as outlined in DOE Order 5820.2A, Radioactive Waste Management.
- d. Discuss the Department's policies on waste management including:
 - Generation reduction
 - Segregation
 - Minimization
 - Pollution prevention
 - Disposal
- e. Discuss how the following Acts apply to and impact the Department's waste management programs:
 - Federal Facilities Compliance Act (FFCA)
 - Pollution Prevention Act of 1990 (PPA)
 - Superfund Amendment Reauthorization Act (SARA)
- f. Discuss the general requirements of the Resource Conservation and Recovery Act (RCRA) as it applies to hazardous and mixed waste.
- g. Discuss the process for determining whether or not waste is classified as hazardous.

2.8 A senior technical safety manager shall have a working level knowledge of maintenance management as it relates to safety.

Supporting Knowledge and/or Skills

- a. Using DOE Order 4330.4B, Maintenance Management Program, explain the following:

- The Department of Energy's role in the oversight of contractor maintenance operations
 - The intent of maintenance management programs
 - The Department's policy and objectives for maintenance management
 - The responsibilities and authorities for maintenance management programs
- b. Discuss the requirements for the control and integration of Management & Operating (M&O) contractor and subcontractor personnel in maintenance activities.
- c. Discuss the graded approach process by which Department line management determines an appropriate level of coverage by facility maintenance management personnel.
- d. Discuss how maintenance activities interface with the following as it relates to safety:
- Conduct of operations
 - Quality assurance
 - Configuration management
 - Safety structures, systems and components
 - Authorization Basis
 - Counterfeit/suspect items

2.9 A senior technical safety manager shall have a working level knowledge of formal configuration management as it relates to safety.

Supporting Knowledge and/or Skills

- a. Discuss the roles and responsibilities of the senior technical safety manager related to implementing configuration management programs.
- b. Discuss the concept of configuration management and its importance in ensuring operational safety.
- c. For the elements identified above, describe the possible effects on safe operations if they are ineffectively implemented.
- d. Describe a typical configuration management process.
- e. Given DOE-STD-1073-93, Guide for Configuration Management Programs, discuss the relationship between the Standard and the DOE Orders.
- f. Discuss each of the following elements of configuration management and how they contribute to safety and an effective configuration management program.
- Program Management
 - Document Control

- Change Control
- Graded Approach
- Design Requirements
- Assessments

- g. Discuss approved/recommended compensatory actions where inadequate configuration management exists and work is ongoing or to be initiated.

2.10 A senior technical safety manager shall have a familiarity level knowledge of safeguards and security as it relates to safety practices.

Supporting Knowledge and/or Skills

- a. Define the terms “safeguards” and “security” as they apply to the Department of Energy safeguards and security program.
- b. Discuss the following and their safety implications:
- Physical security
 - Personnel security
 - Material Control and Accountability
- c. Describe the use of information security systems within Department of Energy.
- d. Discuss the interrelationship between safeguards and security to safety practices.

3. REGULATIONS

Note: When Department of Energy directives are referenced in the Qualification Standard, the most recent revision should be used.

- 3.1 A senior technical safety manager shall have a working level knowledge of the Department of Energy (DOE) Directives structure and their relationship to applicable laws, rules, Federal/State Regulations and industry standards.**

Supporting Knowledge and/or Skills

- a. Discuss the purpose of, and the relationship between DOE Orders, Directives, Federal regulations, and state regulations.
- b. Discuss the DOE Order development and approval process.
- c. Discuss the DOE rule-making process.
- d. Discuss the relationship between the DOE and Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA).
- e. Discuss the difference between a DOE Order and a Rule including enforcement and implementation differences.
- f. Discuss the purpose and conditions of the Federal Compliance Act (FCA).
- g. Discuss the use of Memorandum of Understanding (MOU) and Memorandum of Agreement (MOA) with external agencies and organizations.
- h. Describe the intent of Work Smart Standards and how they are applied.
- i. Discuss the relevance of Public Law 104-113 regarding the use of industry consensus standards.

- 3.2 A senior technical safety manager shall have a working level knowledge of the Price-Anderson Amendment Act of 1988 and its impact on Department of Energy nuclear safety activities.**

Supporting Knowledge and/or Skills

- a. Describe the purpose and scope of the Price-Anderson Amendment Act.
- b. Discuss the Act's applicability to the Department's nuclear safety activities.
- c. Discuss the civil and criminal penalties imposed on the Department, contractors, and subcontractors as the result of a violation of applicable rules and regulations related to nuclear safety.

- d. Discuss the requirements associated with the topics below, as they are affected by rule-making aspect of the Price-Anderson Amendment Act:
 - Safety Analysis Reports
 - Unreviewed Safety Questions
 - Quality Assurance Requirements
 - Defect Identification and Reporting
 - Conduct of Operations at DOE Nuclear Facilities
 - Technical Safety Requirements
 - Training and Qualification
 - Maintenance Management
 - Categorization, Notification, Reporting, and Processing of Operational Occurrences at DOE Nuclear Facilities
 - Occupational Radiation Protection
- e. Discuss the role of senior technical safety manager with respect to implementing the requirements of the Price-Anderson Amendment Act.

3.3 A senior technical safety manager shall have a working level knowledge of the Defense Nuclear Facilities Safety Board's (DNFSB) charter and their interaction with the Department of Energy.

Supporting Knowledge and/or Skills

- a. Discuss the enabling legislation and the charter of the Defense Nuclear Facilities Safety Board.
- b. Identify and discuss applicable Defense Nuclear Facility Safety Board Recommendations.
- c. Identify and discuss Department Implementation Plans and commitments made in responses to Defense Nuclear Facilities Safety Board Recommendations.
- d. Discuss the roles and responsibilities of The Office of the Departmental Representative to the Defense Nuclear Facilities Safety Board (S-3.1) as described in the Guidelines for the Department's Interface with the Defense Nuclear Facilities Safety Board, dated September 8, 1995.
- e. Prepare and/or participate in a briefing to the Defense Nuclear Facilities Safety Board on the status of a Departmental activity or initiative.

4. ADMINISTRATIVE

Note: When Department of Energy directives are referenced in the Qualification Standard, the most recent revision should be used.

4.1 A senior technical safety manager shall have a working level knowledge of problem identification, solving, and decision making techniques.

Supporting Knowledge and/or Skills

- a. Describe and explain the application of problem analysis techniques including the following:
 - Root Cause Analysis
 - Causal Factor Analysis
 - Change Analysis
 - Barrier Analysis
 - Management Oversight and Risk Tree Analysis
- b. Describe and explain the application of the following root cause analysis processes in the performance of occurrence investigations:
 - Events and causal factors charting
 - Root cause coding
 - Recommendation generation
- c. Describe the elements of an effective issue management system and its importance to safety.
- d. Describe the following types of investigations and discuss an example of the application of each:
 - Type A
 - Type B
 - Type C
- e. Discuss the necessary considerations that must be addressed when developing a corrective action.
- f. Discuss the immediate, short-term, and long-term actions taken as the result of a problem identification or an occurrence.
- g. Given the data for an event, determine the root cause and develop corrective actions. Compare the results with that of the originator. Discuss any differences.

4.2 A senior technical safety manager shall have a working level knowledge of technical contract management to assess contractor performance.

Supporting Knowledge and/or Skills

- a. Identify the three major DOE contract types and describe the characteristics, and the advantages and disadvantages of each.
- b. Identify and discuss the types of contracting processes that are used to put major contracts in place.
- c. Describe the "Accountability Rule", and discuss the role that it plays in contract management.
- d. Discuss the following terms as they apply to financial accountability for the contractor:
 - Incentives
 - Fines and Penalties
 - Third-Party Liabilities
 - Loss of, or damage to Government property
 - Allowable and Non-Allowable Costs
- e. Discuss the technical oversight and qualifications required to assess contractor performance and the training of contractor employees.
- f. Discuss the fee-based evaluation process including the development of performance criteria, conduct of the evaluation, and documentation and transmittal requirements for performance.
- g. Identify who can make contractual requests or approvals of contract provisions, and the qualifications required of that individual(s).
- h. Discuss the intent of the revised Department of Energy Acquisition Regulations (DEAR) clause regarding safety and the impact of contract reform on safety.

4.3 A senior technical safety manager shall have a familiarity level knowledge of project management.

Supporting Knowledge and/or Skills

- a. Describe the typical documents and data sources utilized in program management.
- b. Define the following terms:
 - Baseline
 - Graded approach
 - Infrastructure

- Life-Cycle
 - Programmatic management
 - Metrics and performance measures
- c. Describe the key elements of supervising/monitoring program activities and contractors.
- d. Describe the purpose of schedules, and discuss the use of milestones and activities.

4.4 A senior technical safety manager shall have a familiarity level knowledge of management processes and procedures necessary to determine and allocate program resources.

Supporting Knowledge and/or Skills

- a. Define and compare the terms cost estimate and budget.
- b. Describe the process for preparing cost estimates and budgets.
- c. Define and explain the relationship between following terms:
- Budgeted Cost of Work Scheduled (BCWS)
 - Budgeted Cost of Work Performed (BCWP)
 - Actual Cost of Work Performed (ACWP)
- d. Discuss how priorities should be balanced to achieve the following:
- Resources are effectively allocated to address safety, programmatic, and operational considerations.
 - Protecting the public, the workers, and the environment is a priority whenever activities are planned and performed.
- e. Discuss the requirements to procure external products and services for DOE projects.
- f. Describe the methods for procuring DOE or other government products and services.
- g. Explain what is meant by "Make-or Buy" in procuring products or services.
- h. Discuss the Davis-Bacon Act as it relates to DOE financial management issues.

5. ASSESSMENT AND OVERSIGHT

Note: When Department of Energy directives are referenced in the Qualification Standard, the most recent revision should be used.

5.1 A senior technical safety manager shall demonstrate the ability to conduct assessments, develop recommendations for corrective actions, communicate assessment results, and develop supporting reports/documentation.

Supporting Knowledge and/or Skills

- a. Describe the assessment requirements and limitations associated with the interface with contractor employees.
- b. Explain the essential elements and processes associated with the following assessment activities including:
 - Investigation
 - Fact Finding
 - Reporting
 - Tracking to Closure
 - Follow up
 - Corrective Action Implementation.
- c. Describe the actions to be taken if the contractor challenges the assessment findings and explain how such challenges can be avoided.
- d. Lead a team to conduct compliance-based and performance-based assessments. Identify the differences in outcomes and the reasons for these differences.
- e. Write, or review and approve, an assessment appraisal report.
- f. Based on an evaluation of contractor activities, review and approve corrective actions and recommendations, and communicate the results to contractor management.
- g. Participate in formal meetings between Department management and assessed organizations management to discuss the results of the assessments.

5.2 A senior technical safety manager shall demonstrate the ability to trend and analyze safety related performance data.

Supporting Knowledge and/or Skills

- a. Discuss the key processes used in the trending and analysis of operations information.

- b. Discuss the key process to develop and implement metrics and performance measures, validate performance against metrics and performance measures, and trend/analyze data to establish a continuous improvement program.
- c. Discuss the importance and key elements of the following:
 - Maintenance history
 - Operational incident/occurrence report data
 - Security infractions
 - Safety incidents
 - Radiation exposure and incident reporting
 - Schedule variances
 - Counterfeit and Suspect Parts
- c. Using DOE Order 232.1, Occurrence Reporting and Processing of Operations Information, discuss the role of a senior technical safety manager related reportable occurrences.
- d. Discuss the Department's policy regarding the reporting of occurrences as outlined in DOE Order 232.1, Occurrence Reporting and Processing of Operations Information.
- e. Given an occurrence report, determine whether:
 - Review process is adequate
 - Causes are appropriately defined
 - Corrective actions address causes
 - Lessons learned are appropriate
 - Corrective actions are completed
- f. Given DOE Order 210.1, Performance Indicators and Analysis of Operations Information, discuss the key elements of the Order and how they are applied.
- g. Given incident/occurrence report data for a specified period, analyze the information for contributing factors and safety trends.

5.3 A senior technical safety manager shall have a working level knowledge of quality assurance policies, programs, and processes.

Supporting Knowledge and/or Skills

- a. Describe the general requirements, purpose, interrelationships and importance of DOE Order 5700.6C, Quality Assurance, and 10 CFR 830.120, Quality Assurance.
- b. Describe the Department of Energy's and the management and operating contractor's responsibilities and requirements for implementing a Quality Assurance Program (QAP).

- c. Discuss the role of senior technical safety managers with respect to DOE Order 5700.6C, Quality Assurance, and 10 CFR 830.120, Quality Assurance.
- d. Discuss the process for obtaining an exemption to the above documents.
- e. Describe the quality assurance criteria of DOE Order 5700.6C, Quality Assurance, which address the following:
 - Management
 - Performance
 - Assessment
- f. Referring to G-830.120-Rev 0, Implementation Guide for use with 10 CFR 830.120, Quality Assurance, discuss the implementation of an effective Quality Assurance Program (QAP).

EVALUATION REQUIREMENTS

The following requirements shall be met to complete the Department-wide Senior Technical Safety Manager Functional Area Qualification Standard:

1. Documented attainment of the competencies identified in the Department-wide General Technical Base Qualification Standard.
2. Attainment of the competencies listed in this Qualification Standard and documented by a qualifying official or the senior technical safety manager's immediate supervisor.

CONTINUING TRAINING AND PROFICIENCY REQUIREMENTS

Senior technical safety managers shall participate in continuing training as necessary to improve their performance and ensure that they stay up-to-date on changing technology and new requirements. This may include courses and/or training provided by:

- Department of Energy
- Other government agencies
- Outside vendors
- Educational institutions